

Rejections Under 35 U.S.C. 103

The Office Action rejects claims 1-17 as being obvious in view of the teachings of U.S. Patent No. 6,114,083 of Kawamura et al. As discussed below, claims 1-17 distinguish patentably over the teachings of Kawamura.

The present application includes two independent claims, namely, claim 1 and claim 15. Claim 1 recites a positive photosensitive resist composition comprising a resin binder and an encapsulated inorganic material that includes core particles having an average size less than about 10 nanometers. Claim 1 further recites that the photoresist composition is *base soluble* upon activation by radiation. Independent claim 15 recites a positive photoresist composition that includes a resin binder and an encapsulated inorganic material having core particles with an average size ranging from about 1 nm to about 50 nm. Similar to the photoresist composition of claim 1, the photoresist composition recited in claim 15 is also defined as being base soluble upon activation by radiation.

Kawamura does not relate to positive photoresist compositions, but rather describes a radiation sensitive planographic printing plate having a support on which a photosensitive layer is formed. The photosensitive layer can be selectively exposed to heat and/or radiation to form a porous three-dimensional structure that is highly cross-linked and is highly water and base *insoluble*. More particularly, as described in more detail in the attached Declaration of Dr. Fedynyshyn, the formulations disclosed by Kawamura for generating the photosensitive layer are inherently water and *base insoluble*. In particular, the formulations of Kawamura, in addition to being polymeric compounds having selected functional groups and water insoluble particles, include hydrolytic polymerizable agents that promote cross-linking reactions that generate highly cross-linked and water and base insoluble structures.

In some formulations disclosed by Kawamura, the polymeric compounds can have acid-labile protecting groups that can be cleaved in presence of in-situ generated acid. The removal of these protecting groups, however, does not render the formulation water or base soluble. Rather, it appears that the removal of these protecting groups further enhances the cross-linking

reactions for generating the porous structure, and may assist in changing the photosensitive layer from hydrophobic to hydrophilic.

In contrast, both independent claims 1 and 15 recite that the photoresist composition is base soluble upon activation by radiation. Such base solubility can be utilized to remove the exposed portions of the resist, for example, by utilizing an alkaline solution.

Accordingly, independent claims 1 and 15, and claims dependent on these claims, distinguish patentably over Kawamura.

Further, dependent claim 2 recites the additional feature that the binder is a t-butyl blocked polyvinyl phenol, claim 3 recites that additional feature that the binder is a polyvinylphenol and t-butyl acrylate copolymer, and claim 4 recites that the binder is a polyvinyl phenol, t-butyl acrylate and styrene terpolymer. As noted in Dr. Fedynyshyn's declaration, Kawamura fails to disclose any formulations that include polyvinyl phenol.

Moreover, dependent claim 5 recites the additional feature that the binder is a DNQ novolak binder. As noted in Dr. Fedynyshyn's declaration, Kawamura fails to disclose any formulations that include novolak polymers.

CONCLUSION

In view of the above remarks and the Declaration of Dr. Fedynyshyn, submitted under 37 C.F.R. 1.132, reconsideration and allowance of the application are respectfully requested. If there are any remaining issues, Applicant invites the Examiner to call the undersigned at (617-439-2514) in order to expedite the prosecution of the present application.

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Respectfully submitted,

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